

WHAT IS CLAIMED IS:

- 1 1. A method comprising:
  - 2 creating a rule-based grammar having a wildcard identifier in place of a
  - 3 predefined category of words;
  - 4 defining rules to produce artificial combinations of unique sounds in a
  - 5 language, where each artificial combination represents a
  - 6 pronunciation of the words in the predefined category, and
  - 7 represents a generic word that is defined in a speech engine's
  - 8 vocabulary database;
  - 9 generating a set of artificial combinations of unique sounds by substituting
  - 10 the wildcard identifier with the rules; and
  - 11 in response to human speech specifying a wildcard word, determining a
  - 12 number of potential words spoken by the user by finding the
  - 13 generic words and non-generic words that phonetically match the
  - 14 wildcard word, and then assigning each of the words a confidence
  - 15 level.
- 1 2. The method of claim 1, wherein the rule-based grammar comprises a
- 2 context-free grammar (CFG).
- 1 3. The method of claim 1, additionally comprising selecting a non-generic
- 2 word having the highest confidence level.
- 1 4. The method of claim 1, wherein a unique sound in a language comprises
- 2 a phoneme.
- 1 5. The method of claim 1, wherein said generating a set of artificial
- 2 combinations of unique sounds by substituting the wildcard identifier with
- 3 the rules comprises converting the wildcard rule-based grammar into a
- 4 standard rule-based grammar.

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1 6. A method comprising:  
2 specifying a wildcard context-free grammar (CFG) which includes a  
3 wildcard identifier in place of a predefined category of words, each  
4 of which are defined in the speech engine's vocabulary database;  
5 specifying a set of rules that define artificial combinations of unique  
6 sounds in a language, where each artificial combination represents  
7 a pronunciation of the words in the predefined category, and  
8 corresponds to a generic word that is defined in a speech engine's  
9 vocabulary database;  
10 converting the wildcard CFG file into a recognized CFG grammar file by  
11 generating a set of artificial combinations of unique sounds based  
12 on the rules; and  
13 in response to human speech having one or more spoken units,  
14 generating a results object having a number of generic words  
15 corresponding to artificial combinations appropriate to a given  
16 spoken unit, and having a number of non-generic words in the  
17 speech engine's vocabulary database appropriate to a given  
18 spoken unit, each generic word and non-generic word having an  
19 associated confidence level.

1 7. The method of claim 6, additionally comprising querying the results object  
2 for a word having the highest confidence level in the speech engine's  
3 vocabulary database.

1 8. The method of claim 6, wherein a unique sound in a language comprises  
2 a phoneme.

1 9. A machine-readable medium having stored thereon data representing  
2 sequences of instructions, the sequences of instructions which, when

3           executed by a processor, cause the processor to perform the following:  
 4           create a rule-based grammar having a wildcard identifier in place of a  
 5           predefined category of words;  
 6           define rules to produce artificial combinations of unique sounds in a  
 7           language, where each artificial combination represents a  
 8           pronunciation of the words in the predefined category, and  
 9           represents a generic word that is defined in a speech engine's  
 10          vocabulary database;  
 11          generate a set of artificial combinations of unique sounds by substituting  
 12          the wildcard identifier with the rules; and  
 13          in response to human speech specifying a wildcard word, determine a  
 14          number of potential words spoken by the user by finding the  
 15          generic words and non-generic words that phonetically match the  
 16          wildcard word, and then assigning each of the words a confidence  
 17          level.

1    10.    The machine-readable medium of claim 9, wherein the rule-based  
 2           grammar comprises a context-free grammar (CFG).

1    11.    The machine-readable medium of claim 9, wherein a unique sound in a  
 2           language comprises a phoneme.

1    12.    An apparatus comprising:  
 2           at least one processor; and  
 3           a machine-readable medium having instructions encoded thereon, which  
 4           when executed by the processor, are capable of directing the  
 5           processor to:  
 6           create a rule-based grammar having a wildcard identifier in place of  
 7           a predefined category of words;

8                   define rules to produce artificial combinations of unique sounds in a  
9                   language, where each artificial combination represents a  
10                  pronunciation of the words in the predefined category, and  
11                  represents a generic word that is defined in a speech  
12                  engine's vocabulary database;

13                 generate a set of artificial combinations of unique sounds by  
14                 substituting the wildcard identifier with the rules; and

15                 in response to human speech specifying a wildcard word,  
16                 determine a number of potential words spoken by the user  
17                 by finding the generic words and non-generic words that  
18                 phonetically match the wildcard word, and then assigning  
19                 each of the words a confidence level.

1   13.   The apparatus of claim 12, wherein the rule-based grammar comprises a  
2           context-free grammar (CFG).

1   14.   The apparatus of claim 12, wherein a unique sound in a language  
2           comprises a phoneme.

1   15.   An apparatus comprising:

2           means for creating a rule-based grammar having a wildcard identifier in  
3           place of a predefined category of words;

4           means for defining rules to produce artificial combinations of unique  
5           sounds in a language, where each artificial combination represents  
6           a pronunciation of the words in the predefined category, and  
7           represents a generic word that is defined in a speech engine's  
8           vocabulary database;

9           means for generating a set of artificial combinations of unique sounds by  
10           substituting the wildcard identifier with the rules; and

11           in response to human speech specifying a wildcard word, means for

12 determining a number of potential words spoken by the user by  
13 finding the generic words and non-generic words that phonetically  
14 match the wildcard word, and then assigning each of the words a  
15 confidence level.

1 16. The apparatus of claim 15, wherein the rule-based grammar comprises a  
2 context-free grammar (CFG).

1 17. The apparatus of claim 15, wherein a unique sound in a language  
2 comprises a phoneme.

1 18. A system comprising:  
2 a conversion module to accept a wildcard rule-based grammar file as  
3 input, and to convert the wildcard rule-based grammar file to a set  
4 of artificial combinations of unique sounds in a language;  
5 a speech engine to accept human speech having a wildcard word as  
6 input, and to determine a number of potential words matching the  
7 wildcard word, the potential words comprising a number of generic  
8 words corresponding to the artificial combinations of unique sounds  
9 in a language, and a number of non-generic words; and  
10 a speech adapter to interact with the speech engine by querying the  
11 speech engine for potential words matching the wildcard word, and  
12 by returning the word most likely to match the wildcard word  
13 spoken by the user.

1 19. The system of claim 18, wherein the unique sounds in a language  
2 comprise phonemes.

1 20. The system of claim 18, wherein the rule-based grammar is a context-free  
2 grammar (CFG).

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- 1 21. The system of claim 18, wherein the speech engine comprises the  
2 conversion module.